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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/760,374	01/21/2004	Yuu Ishii	Q78752	9826

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EXAMINER

PETKOVSEK, DANIEL J

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 06/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/760,374	Applicant(s) ISHII ET AL	
	Examiner <i>Don 5/22/06</i> Daniel J. Petkovsek	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on amendment filed March 2, 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 2-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 15-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

This office action is in response to the amendment filed March 2, 2006. In accordance with the amendment, claim 1 has been amended, while new claims 15-22 have been added. Claims 1-22 are pending (claims 2-14 previously withdrawn as relating to a non-elected group(s)).

***Drawings***

1. The drawings were received on March 2, 2006. These drawings are acknowledged.

***Claim Objections***

2. Claim 1 is objected to as being redundant. The amended portion adds "the optical fibers have a propagation constant difference therebetween of  $1 \times 10^{-4}$  rad/um or smaller". Then the claim repeats this limitation in the last portion of the claim (".....the fiber coupler is  $10^{-4}$  rad/um or smaller"). Correction is required.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pianciola et al. U.S.P. No. 6,701,046 B1, and further in view of Donno et al. US 2002/0136508 A1.

Pianciola et al. U.S.P. No. 6,701,046 B1 teaches (Fig. 1; column 5, line 35 through column 6, line 8; claims) an optical fiber coupler comprising: a plurality of

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optical fibers including a  $\lambda_1$ -band optical fiber and a  $\lambda_2$ -band optical fiber, fused together at a fusion-elongated portion, wherein each fiber tapers in the fusion-elongated portion to a narrower outer diameter (see claim 1, column 3, lines 59-66), wherein the two bands ( $\lambda_1$  and  $\lambda_2$ ) are different from one another, in which elongation is used during the fusion splicing of the fibers. Pianciola et al. '046 does not explicitly teach that the propagation constant difference between the optical fibers is  $10^{-4}$  rad/um or smaller when these fibers *happen to be* at an elongation ratio in a range of 50% or less.

Donno et al. '508 teaches (ABS, [0036]-[0037], claims 1 and 4) an optical fiber coupler comprising: a plurality of optical fibers including a  $\lambda_1$ -band optical fiber F1 and a  $\lambda_2$ -band optical fiber F2, fused together at a fusion-elongated portion G, wherein the propagation constant difference between the optical fibers (F1 and F2) is  $10^{-4}$  rad/um or smaller (see [0037]; claim 4). Since the propagation constant difference is  $10^{-4}$  rad/um or smaller, it is inherent that, if the optical fibers *were to be* (emphasis added) fusion elongated in a range of 50% or less, the propagation constant would still be less than  $10^{-4}$  rad/um. There is no indication in the prior art that propagation constants would increase over the claimed threshold due to different elongation ratios.

Since Pianciola et al. '046 and Donno et al. '508 are both from the same field of endeavor, the purpose disclosed by Donno et al. '508 would have been recognized in the pertinent art of Pianciola et al. '046.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use similar fibers to create a very low (and beneficial) propagation constant, as taught by Donno et al. '508 for the purpose of decreasing optical error in the very similar coupling arrangement of Pianciola et al. '046.

Regarding claims 15-22, Pianciola et al. '046 and Donno et al. '508 do not expressly disclose the particular conditions for the operating wavelength, radius of the cores/claddings, or relative refractive index difference between a multi-core fiber and its cladding. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize the use of multi-core fibers, single mode fibers, and fibers having very low refractive index difference and/or low band ranges, since these further limitations are using different types of well known fibers in the art to couple optical signals into the coupling region of claim 1. It has been held that where the general conditions of claim (independent claim 1) are disclosed in the prior art, discovering the optimum or workable ranges (using particular fibers (multi-core or otherwise from claims 15 and 18)) involves only routine skill in the art. *In re Aller*, 105 USPQ 233. The use of these well known fibers in the art would have been recognized as workable ranges or materials in view of the teaching of Pianciola et al. '046 and Donno et al. '508 in view of independent claim 1. It is noted that claims 15 and 18 are branching claims of independent claim 1, with claims 16, 17, and 19-22 further dependent upon these branching claims.

### ***Response to Arguments***

5. Applicant's arguments, see amendment and remarks, filed March 2, 2006, with respect to the art rejection to newly amended claim 1, have been fully considered and are persuasive. The rejection of claim 1 to Donno et al. '508 has been withdrawn *due to* the *narrowing* amendment filed March 2, 2006.

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6. Due to the narrowing amendment filed March 2, 2006, new rejections have been made under 35 U.S.C. 103(a) to Pianciola et al. '046 further in view of Donno et al. '508 in regards to claims 1 and 15-22.

### *Inventorship*

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

### *Conclusion*

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the


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advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Petkovsek whose telephone number is (571) 272-2355. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Daniel Petkovsek  
March 22, 2006

  
AKM ENAYET ULLAH  
PRIMARY EXAMINER